DOCUMENT RESUME

ED 155 190 TM 007 070

AUTHOR Coker, Homer; Lorentz, Jeffrey L.
TITLE An Examination of Student Coping Style, Teacher Control and Student Achievement in Reading.
PUB DATE Dec 75
NOTE 31p.; Paper presented at the Annual Meeting of the National Reading Conference (25th, December 4-6, 1975, St. Petersburg, Florida); For related document, see TM 007 069

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Adjustment (to Environment); *Class Management; Classroom Environment; Classroom Observation Techniques; Elementary Education; *Predictor Variables; *Reading Achievement; Reading Comprehension; Socioeconomic Influences; Statistical Data; *Student Behavior; Student Teacher Relationship; *Teacher Behavior; Teaching Techniques
IDENTIFIERS Coping Analysis Schedule for Educational Settings; Florida Climate and Control System

ABSTRACT

Systematic classroom observation instruments were used to study the relationship between observed classroom behaviors--specifically student coping style and teacher control--and student growth in reading. Classroom behaviors were recorded in the fall and the following spring with the use of the Coping Analysis Schedule for Educational Settings for student behaviors, and the Florida Classroom Climate and Control System for teacher behaviors. Data were analyzed separately for two types of classroom environment: either teacher directed settings or program directed settings. Multiple regression analysis of mean scores on all variables for 60 classrooms was used to identify the predictors of reading achievement at the end of the school year. Reading achievement tests appropriate for the particular grade level (between grade 1 and grade7) were administered; they included The Scott Foresman Initial Survey Test, the Comprehensive Tests of Basic Skills, and The Iowa Tests of Basic Skills. Socioeconomic status and various scores from the two rating scales also predicted most of the reading scores variance. (CTM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED155190

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Jeffrey L. Lorentz

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

AN EXAMINATION OF STUDENT COPING STYLE, TEACHER CONTROL AND STUDENT ACHIEVEMENT IN READING

Homer Coker, Ph.D.

Jeffrey L. Lorentz, Ed.D.

West Georgia College

TM002 020

A Paper presented at the 25th Annual Meeting, National Reading Conference, December 4-6, 1975, Sheraton-Bel Air, St. Petersburg, Florida

Systematic classroom observation instruments have, in recent years, been refined to the point where serious investigators can use them in studies of teaching effectiveness. A number of observation instruments are used in the Carroll County, Georgia, Competency Based Teacher Certification (CBTC) Project.* In this project, data have been collected on more than 1800 students in 60 classrooms (grades 1 - 12) during the 1974-75 school year. Traditional student measures also used in the project include standardized reading tests given to each student in the fall and again in the spring.

It is the purpose of the present study to examine the relationships between observed classroom behavior, specifically student coping style and teacher control, and student growth in reading.

Several recent studies have examined the relationship between observed classroom behaviors and student growth. Lahaderne (1968), Cobb (1972) and Samuels and Turnure (1974) have all found significant relationships between attentiveness and achievement. McKinney and others (1975) used a modified version of Spaulding's CASES to investigate the relationships between classroom behavior patterns

---

*The Carroll County Competency Based Teacher Certification Project, conducted by the School of Education, West Georgia College, and Carroll County, Georgia, teachers, under an ESEA Title III Grant from the Division of Program and Staff Development, Georgia State Department of Education, is now in its third year of operation. The major objective of the project is the development of a system for the re-certification of experienced classroom teachers which is a potential alternative to the program-approved approach currently in use in Georgia.

and academic achievement and found that combinations of discrete behaviors predicted achievement as well as IQ test scores and that the combination of test information and behavioral information predicted school year achievement better than was predicted by either alone.

In Follow Through studies, Soar (1973) found that a number of classroom behavior variables, including teacher control and structure, were related to increased pupil cognitive growth.

Soar and Soar (1973) present the results of a series of studies relating combinations of student achievement, self-concept and observational data. Their findings include relationships between pupil achievement and classroom behavior as well as non-linear relationships and interactions among the variables. The Soars also found that influences outside the classroom (such as social status) are related to student gain and account for a large proportion of the variance. They found that combinations of variables related to teacher control and teacher choice of problem, were associated with gain in reading.

Camp and Zimet (1974) found that positive classroom behavior reported by teachers, the lack of off-task behavior reported by observers, mental age, and measures of reading achievement were highly interrelated.

METHOD

Subjects

The subjects of the present study, 34 classroom teachers, are a subset of the population of 60 teachers who participated in

the CBTC Project during the 1974-75 school year. The 60 teachers were volunteers, and a variety of grade levels and subject areas are represented. Only those teachers who taught Reading as a major subject are included in the sample selected for the present study. Although the teachers were volunteers, and the sample may be biased, it is a true sample of Carroll County since all but one elementary school and all grade levels are represented.

Measures

The teachers in the sample represented a range of grades from 1 through 7, thus several different tests were used to measure reading achievement.

The Scott Foresman Initial Survey Test, Form A (IST) (Monroe, Manning, Wepman and Gibb, 1972) was used as the pretest (fall) measure in the first grade. The Reading portion of the IST is composed of 120 items and provides 5 subtests and one composite score. (The Math portion was also administered but not used in the present study). Subtests include Language Meanings, Auditory Ability, Visual Ability, Letter Recognition, and Sound-Letter Relationships.

The Scott-Foresman Reading program is used in Carroll County primary grades, and Soctt-Foresman's IST is used as a placement test in all first grade classes. Its validity and reliability make the IST an appropriate instrument for use in the present study.

The selection of an end-of-year first grade measure was made after several different tests were tried with a small sample of

students not in the project. The Comprehensive Test of Basic Skills, Level B, Form S (CTBS) (CTB/McGraw-Hill, 1974) was found to be the most appropriate in terms of difficulty. Students were able to respond to some of the items, but did not reach the ceiling. (Both floor and ceiling effects are problems with some tests in the lower elementary grades).

The CTBS Reading Test includes four subtests, Letter Sounds, Word Recognition 1, Reading Comprehension and Word Recognition II. The reported validity and reliability of the test are satisfactory.

The Iowa Test of Basic Skills, Primary Battery, Level 7, Form 6 (ITBS-P) (Hieronymus, Lindquist and others, 1972), a widely used and well-known achievement test was used in the second grade. The Reading Test includes three subtests: Pictures, Sentences and Stories.

The Iowa Tests of Basic Skills, Form 5 and 6, Levels Edition (ITBS-L) (A. N. Hieronymus and E. F. Lindquist, 1971) was used with the remainder of the classes in grades 3 through 7. The Reading Comprehension subtest was used in the present study. As with the other measures, the test's reliability and validity are adequate. In addition, the State of Georgia makes use of the ITBS-L Battery in the 4th and 8th grades in the state-wide testing program.

The Coping Analysis Schedule for Educational Settings (CASES), (Spaulding, 1970) is a category system designed to measure pupil socialization and consists of 19 categories of student "coping" behaviors which are identified by descriptive statements such as "Aggressive Behavior," "Self-Directed Activity," "Observing Passively," etc. The CASES categories are arranged with the more

active coping categories grouped at one end and the more passive categories at the other, but the numbers do not represent a scale. CASES has been developed over a ten year period as a result of more than 1,000 case studies in on-going public school classrooms and other educational settings. Relationships between CASES and student achievement have been established in a number of recent studies.

The Florida Classroom Climate and Control System (FLACCS) (Soar, Soar and Ragosta, 1971) examines the control tactics of teachers as well as their affective behavior. It includes items relating to the nature of classroom structure, teacher and student control strategies, and teacher and student affective behaviors, both positive and negative. In Follow Through Studies, data indicated that FLACCS discriminated significantly between programs and related to pupil growth.

Socioeconomic Status. An estimate of the socioeconomic status (SES) was obtained for each student as follows: Where available, the occupation for both parents was recorded for each student. This was converted to a 1 - 10 scale (10 = high status, 1 = low status) using the NORC tables (Reiss, 1961) as a basis for the conversion. To account for the effect of both mother and father, a weighting process suggested in Rossi and others (1974) was used. A SES composite score was obtained by using the mother's score plus three times the father's (or four times the mother's if the father's was missing).

Procedures

Selection and Orientation of Participants. All Carroll County teachers were contacted in the Spring of 1974, presented a slide/tape of the CBTC project and asked to volunteer as observers or observees. It was planned to select three observers and this was done, and sixty teachers agreed to serve as observees. Letters of agreement were signed outlining responsibilities of both parties.

Summer workshops were conducted to familiarize observees with all phases of study including competencies, observation instruments and student outcome measures.

Testing. The pretests were administered early in the Fall of 1974 in the classrooms of 60 Carroll County teachers, and posttests administered again in the classrooms of the same 60 teachers--all of whom were still in the project in May, 1975.

A group of specially--trained testers administered the tests in each classroom. Where necessary (i.e., in primary grades) the tests were administered to small groups of students and care was taken to insure that students understood the testing procedure, instructions, etc.

Observations. After the pretests had been administered, each of the approximately 1800 students in the 60 classes was observed using the CASES instrument. This task was completed in three weeks. Each child's record was scored to identify his coping style. At the end of the year, two observations were again recorded on every student in the 60 classrooms.

Data Reduction Procedures

Initial Processing. Tests were hand or machine scored, keypunched and verified. Observation data were keypunched from the data collection forms and verified. With the exception of the FLACCS scoring, all data processing was performed at the West Georgia College Computer Center.

FLACCS data were reduced from a series of 186 items for six series of observations to 28 competency scores for each teacher by Robert and Ruth Soar at the University of Florida. These competency scores are based on a priori competencies identified in the Carroll County CBTC Project. They were normalized for the total project group (N = 60) by converting items to T scores and summing across items.

CASES frequencies for each student were scored using Spaulding's procedure (Spaulding, personal communication) to identify predominant coping styles for each student as follows:

Style	Description
A	Aggressive, manipulative
B	Inappropriately Self-directed
C	Passive, withdrawn
D	Peer Dependent
E	Compliant
F	Social, productive
G	Inner-directed, Task-oriented
H	Other-directed, Task-oriented
Overall	Composite of A-H

When CASES observations were made, observers distinguished two types of classroom settings: Teacher Directed (Setting 1) and Program Directed (Setting 3). There is ample evidence from Spaulding's studies and in the Carroll County CBTC Project that changes in the classroom setting resulted in changes in the student's CASES scores. Scores were therefore obtained for students for the appropriate setting by combining data from both initial visits only when collected in the same setting. The same procedure was followed for the CASES data collected in final (post) visits. Thus, for one student, one or two sets of CASES scores could be obtained (e.g.: both observations occurred in Setting 1; both occurred in Setting 3; one occurred in Setting 1 and one occurred in Setting 3). In addition to confusing the reader, this mix of settings complicated problems of data analysis.

Reduction to classroom means. When the data had been scored and sorted into classroom groups, means for the several variables were computed. The voluntary participation of teachers in the CBTC Project, lack of equivalent tests across grade levels, student attrition, and related problems, resulted in some significant problems in the analysis of the data at this stage.

In general, the following steps were followed to reduce the data to classroom means for the sample group:

a) For each student, match pretest with posttest, drop students missing either test.

b) For each student, match in Setting 1 and Setting 3, pre-CASES with post-CASES; drop students without matching pre-post scores within appropriate setting.

c) Compute estimate of SES for each student, drop students with missing SES score.

d) Divide tests and CASES in two groups according to setting (the same test scores were used if a student had CASES scores for both Setting 1 and Setting 3).

e) Convert CASES style scores to T scores (post-CASES converted using pre-CASES as norm for total group within setting).

f) Compute class means for pre-CASES and post-CASES within Settings 1 and 3.

g) Compute means for pre and posttests for Setting 1 and Setting 3 groups.

h) Convert all test means to T scores separately for 1st grade pretest and posttest and 2-7 pretest and posttest.

i) Compute mean SES for Setting 1 and Setting 3 groups by class.

Table 1 shows the groups which resulted from the preceding steps by grade level and number of students. Any group which included fewer than five students was not included in the subsequent analyses.

Regression Analyses. The steps taken above were preliminary to the central analyses of the study. In order to examine the relationships between the observational data and reading achievement, a series of multiple regression analyses were carried out using the Biomedical stepwise multiple regression program BMD02R (Dixon, 1974). The dependent variable was mean reading posttest and the other independent variables were permitted to enter the equation in the order in which they accounted for additional proportions of the variance.

TABLE 1

NUMBER OF STUDENTS IN
CLASSROOM GROUPS BY
CASES SETTING AND GRADE LEVEL

CASES SETTING	GRADE	SCHOOL CODE	TEACHER CODE	NUMBER OF STUDENTS
1	1	A	1	7
			2	5
		B	3	13
			4	12
			5	5
		C	6	24
		D	7	9
	2	A	8	12
		B	9	11
			10	13
		E	11	6
	4	B	12	20
			13	12
			14	21
			15	25
		C	16	8
		F	17	11

TABLE 1 (continued)

CASES SETTING	GRADE	SCHOOL CODE	TEACHER CODE	NUMBER OF STUDENTS
1	5	G	18	12
		C	19	10
	6	C	20	26
			21	25
		D	22	15
		F	23	45
3	1	A	1	6
			2	7
		B	4	5
		D	25	7
		H	26	13
			27	8
	2	A	8	16
		B	9	5
			10	15
		H	28	5

TABLE 1 (continued)

CASES SETTING	GRADE	SCHOOL CODE	TEACHER CODE	NUMBER OF STUDENTS
3	3	C	29	6
	4	B	12	10
			13	10
			30	6
			15	8
		I	17	10
		C	16	20
		J	31	17
	5	G	32	28
			18	21
		K	33	19
	6	D	22	10
		F	23	10
	7	G	34	26

The variables used in the regression analyses are shown in Table 2.

RESULTS

Two analyses were run with the CASES Setting 1 (S-1) and CASES Setting 3 (S-3) data, respectively. These revealed that different patterns of variables were related to end-of-year Reading achievement depending on the setting. As might be expected, pretest accounted for most of the variance (73% in S-1, 84% in S-3). The next variable to enter the equation in S-1 was SES, accounting for an additional 4% of the variance. In S-3, however, pre-CASES Style C (withdrawn) was the next variable entering the equation, accounting for 2% additional variance.

For S-1, nine variables resulted in a multiple R of .97 ($F = 20.93$, $p < .001$). These accounted for 94% of the total posttest variance. The variables in the equation are shown in Table 3. In addition to pretest and SES, a FLACCS variable related to teacher control (F14, student able to speak freely), one related to student behavior (F1, Student reduced deviant behavior), and several pre-CASES variables (Style A, Aggressive; Style F, Social Productive; and Style B, Peer-oriented) are all significant predictors of Student Reading achievement.

Additional variables entered the equation in subsequent steps, but each variable after the first nine generally accounted for less than 1% additional variance. A summary of the first twenty steps is shown in Table 4 (further steps resulted in insignificant increases in Multiple R Square).

TABLE 2

VARIABLES USED IN
REGRESSION ANALYSES

VARIABLE NUMBER	KEY	DESCRIPTION
1	SES	Mean Socioeconomic Status
2	R1	Mean Reading Pretest
3	R2	Mean Reading Posttest*
		FLACCS:
4	F1	Student reduced deviant behavior
5	F2	Student better physical, mental health
6	F3	Student enjoys class, happy smiles
7	F4	Student on task, actively involved
8	F5	Student absence of withdrawn behavior
9	F6	Teacher pauses, elicits and responds to student questions before proceeding
10	F7	Same as F6 above but a summative measure
11	F8	Teacher uses a variety of methods, verbal, to deliver instructions
12	F9	Teacher uses a variety of methods, verbal, plus selected non-verbal, to deliver instructions
13	F10	Teacher uses a variety of methods--facial--gestural
14	F11	Teacher uses a variety of methods, verbal and non-verbal to deliver instructions
15	F12	Student self-directed to move toward task
16	F13	Teacher demonstrates proper listening skills
17	F14	Student able to speak freely
18	F15	Teacher utilizes non-verbal communication skills

*Dependent variable

TABLE 2 (continued)

VARIABLE NUMBER	KEY	DESCRIPTION
19	F16	Student able to follow directions, on task
20	F17	Students feel free to interrupt presentations
21	F18	Student movement toward tasks
22	F19	Teacher provides feedback to pupil on his behavior
23	F20	Teacher maintains self-control in various classroom situations and interactions with student
24	F21	Teacher recognizes and treats individual student behavior
25	F22	Teacher uses more than one instructional activity simultaneously
26	F23	Teacher evidence of a personal one-to-one relationship with each student
27	F24	Student evidence of importance as class member--group involvement
28	F25	Teacher supportive classroom mangement
29	F26	Student evidence of enthusiasm
30	F27	Teacher listens to students and provides feedback
31	F28	Student high interest
		CASES:
32	CA1	Mean Pre Style A, Aggressive, manipulative
33	CB1	Mean Pre Style B, Inappropriately Self-directed
34	CC1	Mean Pre Style C, Passive, withdrawn
35	CD1	Mean Pre Style D, Peer Dependent

TABLE 2 (continued)

VARIABLE NUMBER	KEY	DESCRIPTION
36	CE1	Mean Pre Style E, Compliant
37	CF1	Mean Pre Style F, Social, productive
38	CG1	Mean Pre Style G, Inner-directed, Task-oriented
39	CH1	Mean Pre Style H, Other-directed, Task-oriented
40	CT1	Mean Overall Pre CASES, Composite of A-H
41	CA2	Mean Post Style A, Aggressive, manipulative
42	CB2	Mean Post Style B, Inappropriately Self-directed
43	CC2	Mean Post Style C, Passive, withdrawn
44	CD2	Mean Post Style D, Peer Dependent
45	CE2	Mean Post Style E, Compliant
46	CF2	Mean Post Style F, Social, productive
47	CG2	Mean Post Style G, Inner-directed, Task-oriented
48	CH2	Mean Post Style H, Other-directed, Task oriented
49	CT2	Mean Overall Post CASES, Composite of A-H

TABLE 3

NINE VARIABLE EQUATION
CASES SETTING 1

VARIABLE NO.	KEY	COEFFICIENT	STD. ERROR	F TO REMOVE
(CONSTANT		-69.23)		
2	R1	0.97	.087	122.74***
1	SES	1.11	.283	15.41**
17	F14	-0.14	.037	14.53**
32	CA1	2.14	.565	14.30**
4	F1	-0.12	.040	8.83**
37	CF1	0.65	.229	8.08*
33	CB1	-0.49	.217	5.12*
21	F18	0.09	.044	4.06
31	F28	0.17	.117	2.09

*** $p<.001$

** $p<.01$

* $p<.05$

TABLE 4

SUMMARY OF STEPS
CASES SETTING 1

STEP NUMBER	VARIABLE ENTERED	VARIABLE REMOVED	MULTIPLE R	MULTIPLE R SQUARE	F VALUE TO ENTER OR REMOVE
1	R1		.86	.733	57.72***
2	SES		.88	.778	3.98
3	F14		.89	.798	1.87
4	CA1		.92	.849	6.08*
5	CF1		.94	.880	4.51*
6	CB1		.94	.891	1.54
7	F1		.95	.904	1.99
8	F18		.96	.925	4.00
9	F28		.97	.936	2.09
10	F24		.97	.943	1.66
11	F13		.98	.951	1.76
12	F23		.98	.967	4.68
13		F28	.98	.966	0.31
14	F16		.99	.976	4.63
15		F18	.99	.975	0.72
16	CG2		.99	.982	4.33
17	F25		.99	.986	1.99
18	F10		.99	.991	4.66
19	CH1		.99	.995	6.64*
20	CB1		.99	.995	0.11

*** p<.001

* p<.05

For the S-3 data, seven variables produced a multiple R of .98 ($F = 59.84$, $p<.001$), accounting for 96% of the variance. With the exception of pretest, a different set of variables entered as significant predictors. Pre-CASES variables (Style C, Withdrawn; Style G, Inner-directed task-oriented; and Style E, Adult Dependent), a FLACCS variable (F18, Student movement toward tasks) and one post-CASES variable (Style F, Social-productive) are all significant predictors of Reading achievement in CASES Setting 3, shown in Table 5.

Again, additional steps resulted in increased variance accounted for. The first fifteen (of 22) steps are summarized in Table 6.

Two additional pairs of analyses were run. In the first set, only pretest, SES and CASES variables were allowed to enter the equations. In the other, only FLACCS variables, along with pretest and SES entered.

For S-1, five CASES variables (along with pretest and SES) accounted for 90% of the posttest Reading variance ($R = .95$; $F = 20.40$, $p<.001$). Significant predictors are pretest, pre and post Style A (Aggressive) and post Style C (Withdrawn). For S-3, six CASES variables and pretest accounted for 96% of the variance ($R = .98$; $F = 54.70$, $p<.001$). Significant predictors are pre Styles H (Other-directed), G (Inner-directed), C (Withdrawn), and B (Peer-oriented) and post Style A (Aggressive). These equations are shown in Tables 7 and 8.

When CASES variables were held out, in S-1 only one FLACCS variable (plus pretest and SES) entered the equation as shown in Table 9. The multiple R was .89 ($F = 24.94$, $p<.001$) accounting for 89% of the variance. The FLACCS variable (Student able to speak freely) is not found to be a significant predictor when used along

TABLE 5

SEVEN VARIABLE EQUATION
CASES SETTING 3

VARIABLE NO.	KEY	COEFFICIENT	STD. ERROR	F TO REMOVE
(CONSTANT		-119.49)		
2	R1	1.10	.072	230.83***
34	CC1	1.80	.344	27.32***
21	F18	0.12	.024	24.50***
38	CG1	-0.58	.141	17.18***
46	CF2	-0.23	.085	7.33*
36	CE1	0.35	.131	7.16*
11	F8	0.02	.011	4.45

*** $p<.001$

* $p<.05$

TABLE 6

SUMMARY OF STEPS
CASES SETTING 3

STEP NUMBER	VARIABLE ENTERED	VARIABLE REMOVED	MULTIPLE R	MULTIPLE R SQUARE	F VALUE TO ENTER OR REMOVE
1	R1		.92	.844	119.14***
2	CC1		.93	.868	3.78
3	CE1		.94	.888	3.61
4	CG1		.95	.906	3.60
5	F18		.97	.937	8.72***
6	CF2		.98	.953	5.91*
7	F8		.98	.963	4.45
8	CT2		.99	.972	4.53
9		CF2	.99	.971	0.41
10	F1		.99	.977	3.62
11	CA1		.99	.981	3.45
12	CE2		.99	.984	2.76
13	F2		.99	.988	3.99
14	CB2		.99	.994	8.63*
15	CH1		.99	.996	4.96*

*** $p < .001$

* $p < .05$

TABLE 7

EQUATION USING CASES
VARIABLES ONLY
SETTING 1

VARIABLE NO.	KEY	COEFFICIENT	STD. ERROR	F TO REMOVE
(CONSTANT		-78.51)		
2	R1	0.91	.104	75.83***
32	CA1	2.75	.743	13.73**
41	CA2	-1.65	.536	9.46**
43	CC2	0.91	.349	6.79*
1	SES	0.58	.288	4.08
39	CH1	0.38	.203	3.50
34	CC1	-0.89	.559	2.53

*** $p<.001$

** $p<.01$

* $p<.05$

TABLE 8

EQUATION USING CASES
VARIABLES ONLY
SETTING 3

VARIABLE NO.	KEY	COEFFICIENT	STD. ERROR	F TO REMOVE
(CONSTANT		62.09)		
2	R1	1.04	.061	294.39***
39	CH1	-0.71	.138	26.48***
38	CG1	-0.91	.180	25.46***
34	CC1	1.40	.349	15.99***
33	CB1	-0.35	.144	5.74*
41	CA2	-0.59	.247	5.72*
49	CT2	-1.33	.082	2.63

*** $p < .001$

* $p < .05$

TABLE 9

EQUATION USING FLACCS
VARIABLES ONLY
CASES SETTING 1

VARIABLE NO.	KEY	COEFFICIENT	STD. ERPOR	F TO REMOVE
(CONSTANT		12.31)		
2	R1	0.82	.105	61.80***
1	SES	0.63	.298	4.43*
17	F14	-0.03	.024	1.87

*** $p < .001$

* $p < .05$

with SES and pretest. Using the S-3 data, more FLACCS variables entered the equation, shown in Table 10. The final multiple R, using 10 variables was .98 ($F = 38.17$, $p < .001$) accounting for 97% of the variance. In addition to pretest six FLACCS variables related to teacher control and two related to student behaviors are significant predictors of reading achievement.

DISCUSSION

The findings of the present study support the notion that systematic classroom observation measures can be used as predictors of student achievement. The finding that the entry level of the class (shown by pretest and SES) accounts for a major portion of the posttest variance is consistent with other studies (and an often overlooked phenomenon in studies of student growth).

There is evidence from the analyses that the type of classroom setting affects student growth and that different teacher behaviors account for student achievement. This suggests that data collection in on-going classrooms include descriptors of classroom settings as a variable in the analysis.

Several of the significant predictors of student achievement are also appearing in other studies of the CBTC data, supporting the present findings. However, the present study is a preliminary analysis of a portion of a larger set of data collected in the CBTC project and these results should be viewed as tentative. The small number of cases must be augmented and the study replicated before the findings can be viewed as conclusive. The results do suggest

TABLE 10

EQUATION USING FLACCS
VARIABLES ONLY
CASES SETTING 3

VARIABLE NO.	KEY	COEFFICIENT	STD. ERROR	F TO REMOVE
(CONSTANT		-68.02)		
2	R1	1.00	.084	140.35***
9	F6	-0.48	.086	30.73***
12	F9	0.18	.036	23.71***
26	F23	0.30	.075	15.84**
28	F28	-0.11	.035	10.54**
30	F27	-0.32	.104	9.59**
16	F13	0.33	.128	6.53*
13	F10	-0.08	.031	6.29*
21	F18	0.05	.022	5.69*
23	F20	0.05	.026	3.11

*** $p<.001$

** $p<.01$

* $p<.05$

directions for further study and lend support to the notions uderlying the CBTC project. Follow up studies will include an examination of interactions and non-linear relationships among the data.

The present study, however, does support the notion that teacher control and student coping style are related to student achievement in Reading and the two observational instruments used are interrelated.

REFERENCES

Camp, B. W., & Zimet, S. G. "The Relationship of Teacher Rating Scales to Behavior Observations and Reading Achievement of First-grade Children," Journal of Special Education, 1974, 8. 353-359.

Cobb, J. A. "Relationship of Discrete Classroom Behaviors to Forth-grade Academic Achievement," Journal of Educational Psychology, 1972, 63 (1), 74-80.

Comprehensive Tests of Basic Skills. Monterey, California: McGraw-Hill, 1974.

Dixon, W. J. (Ed.) Biomedical Computer Programs. Berkeley: University of California Press, 1974.

Hieronymus, A. N., Lindquist, E. F., & others. Iowa Tests of Basic Skills. Boston: Houghton Mifflin Company, 1972.

Hieronymus, A. N., & Lindquist, E. F. Iowa Tests of Basic Skills. Boston: Houghton Mifflin Company, 1971.

Lahaderne, H. M. "Attitudinal and Intellectual Correlates of Attention: A Study of Four Sixth-grade Classrooms," Journal of Educational Psychology, 1968, 59, 320-324.

McKinney, J. D., Mason, J., Perkerson, K., & Clifford M. "Relationship Between Classroom Behavior and Academic Achievement." Journal of Educational Psychology, 1975, 67 (2), 198-203.

Monroe, M., Manning, J. C., Wepman, J. M., & Gibb, G. E. The Scott, Foresman Initial Survey Test. Glenview, Illinois: Scott, Foresman and Company, 1972.

Reiss, A. J., Jr, Duncan, O. D., Hatt, P. K., & North, C. C. Occupations and Social Status. New York: The Free Press of Glencoe, Inc., 1961.

Rossi, P. H., Sampson, W. A., Bose, C. E., Josso, G., & Passel, Jr. Measuring Household Social Standing. Social Science Research, 1974, 3, 169-190.

Samuels, S. J., & Turnure, J. E. "Attention and Reading Achievement in First-grade Boys and Girls," Journal of Educational Psychology, 1974, 66, 29-32.

Soar, R. S. Final Report--Follow Through Classroom Process Measurement and Pupil Growth (1970-71). Gainesville: Institute For Development of Human Resources, University of Florida, 1973.

Soar, R. S., & Soar, R. M. Classroom Behavior, Pupil Characteristics and Pupil Growth for the School Year and the Summer. Gainesville: Institute for Development of Human Resources, University of Florida, 1973.

Soar, R. S., Soar, R. M., & Ragosta, M. Florida Climate and Control System: Observer's Manual. Gainesville: Institute for Development of Human Resources, University of Florida, 1971.

Spaulding, R. L. Classroom Behavior Analysis and Treatment, San Jose: Author, 1970.